

=> d his

(FILE 'HOME' ENTERED AT 20:13:19 ON 05 NOV 2004)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, ...' ENTERED AT 20:13:46 ON 05 NOV 2004

SEA (GERANYLGERANYL? (S)(SYNTHAS? OR SYNTHETAS?)) AND ((ABIETAD

13 FILE AGRICOLA
3 FILE BIOENG
29 FILE BIOSIS
6 FILE BIOTECHABS
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25 FILE BIOTECHNO
15 FILE CABA
5 FILE CANCERLIT
42 FILE CAPLUS
1 FILE CROPU
1 FILE DDFB
1 FILE DDFU
447 FILE DGENE
9 FILE DISSABS
1 FILE DRUGB
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27 FILE EMBASE
29 FILE ESBIODASE
0* FILE FEDRIP
1 FILE FSTA
2 FILE GENBANK
4 FILE IFIPAT
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16 FILE LIFESCI
26 FILE MEDLINE
2 FILE NTIS
9 FILE PASCAL
39 FILE SCISEARCH
12 FILE TOXCENTER
40 FILE USPATFULL
5 FILE USPAT2
2 FILE WPIDS
2 FILE WPINDEX

L1 QUE (GERANYLGERANYL? (S)(SYNTHAS? OR SYNTHETAS?)) AND ((ABIETAD

FILE 'DGENE, CAPLUS, USPATFULL, SCISEARCH, BIOSIS, ESBIODASE, EMBASE, MEDLINE, BIOTECHNO, LIFESCI' ENTERED AT 20:18:49 ON 05 NOV 2004

L2 720 S (GERANYLGERANYL? (S)(SYNTHAS? OR SYNTHETAS?)) AND ((ABIETADIE
L3 283 S L2 AND HMG?
L4 282 DUP REM L3 (1 DUPLICATE REMOVED)
L5 282 S L4 AND (PRODUC? OR SYNTHES?)
L6 281 S L5 AND (MICROORGANISM? OR CELL? OR ORGANISM? OR YEAST? OR CE
L7 1 S L6 AND UPC?

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LOGINID:ssspta1652dmr

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

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NEWS 3 JUL 12 BEILSTEIN enhanced with new display and select options,
resulting in a closer connection to BABS
NEWS 4 AUG 02 IFIPAT/IFIUDB/IFICDB reloaded with new search and display
fields
NEWS 5 AUG 02 CAPLUS and CA patent records enhanced with European and Japan
Patent Office Classifications
NEWS 6 AUG 02 The Analysis Edition of STN Express with Discover!
(Version 7.01 for Windows) now available
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NEWS 8 AUG 27 BIOTECHABS/BIOTECHDS: Two new display fields added for legal
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NEWS 12 SEP 27 STANDARDS will no longer be available on STN
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NEWS 14 OCT 28 KOREAPAT now available on STN

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MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004
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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 20:13:19 ON 05 NOV 2004

=> index bioscience medicine

FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.21	0.21

FULL ESTIMATED COST

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE,
AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS,
BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB,
CROPU, DDFB, DDFU, DGENE, DISSABS, ...' ENTERED AT 20:13:46 ON 05 NOV 2004

78 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view
search error messages that display as 0* with SET DETAIL OFF.

```
=> s (geranylgeranyl? (s)(synthas? or synthetas?) and ((abietadien? or
diterpen?)(s)(synthas? or synthetas?))
UNMATCHED LEFT PARENTHESIS '(GERANYLGER'
The number of right parentheses in a query must be equal to the
number of left parentheses.
```

```
=> s (geranylgeranyl? (s)(synthas? or synthetas?)) and ((abietadien? or
diterpen?)(s)(synthas? or synthetas?))
```

```
13 FILE AGRICOLA
3 FILE BIOENG
29 FILE BIOSIS
6 FILE BIOTECHABS
6 FILE BIOTECHDS
25 FILE BIOTECHNO
15 FILE CABA
5 FILE CANCERLIT
42 FILE CAPLUS
1 FILE CROPU
1 FILE DDFB
1 FILE DDFU
26 FILES SEARCHED...
447 FILE DGENE
9 FILE DISSABS
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1 FILE DRUGU
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29 FILE ESBIODASE
0* FILE FEDRIP
1 FILE FSTA
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4 FILE IFIPAT
7 FILE JICST-EPLUS
16 FILE LIFESCI
26 FILE MEDLINE
2 FILE NTIS
53 FILES SEARCHED...
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39 FILE SCISEARCH
12 FILE TOXCENTER
40 FILE USPATFULL
5 FILE USPAT2
2 FILE WPIDS
73 FILES SEARCHED...
2 FILE WPINDEX
```

32 FILES HAVE ONE OR MORE ANSWERS, 78 FILES SEARCHED IN STNINDEX

```
L1 QUE (GERANYLGERANYL? (S)(SYNTHAS? OR SYNTHETAS?)) AND ((ABIETADIEN? OR DIT
ERPEN?)(S)(SYNTHAS? OR SYNTHETAS?))
```

```
=> d rank
```

```
F1 447 DGENE
F2 42 CAPLUS
F3 40 USPATFULL
F4 39 SCISEARCH
F5 29 BIOSIS
F6 29 ESBIODASE
F7 27 EMBASE
F8 26 MEDLINE
F9 25 BIOTECHNO
F10 16 LIFESCI
F11 15 CABA
F12 13 AGRICOLA
F13 12 TOXCENTER
F14 9 DISSABS
F15 9 PASCAL
F16 7 JICST-EPLUS
F17 6 BIOTECHABS
F18 6 BIOTECHDS
F19 5 CANCERLIT
```

F20	5	USPAT2
F21	4	IFIPAT
F22	3	BIOENG
F23	2	GENBANK
F24	2	NTIS
F25	2	WPIDS
F26	2	WPINDEX
F27	1	CROPU
F28	1	DDFB
F29	1	DDFU
F30	1	DRUGB
F31	1	DRUGU
F32	1	FSTA

=> file f1-f10
COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
4.56	4.77

FULL ESTIMATED COST

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=> s (geranylgeranyl? (s)(synthas? or synthetas?)) and ((abietadien? or diterpen?)(s)(synthas? or synthetas?))
L2 720 (GERANYLGERANYL? (S)(SYNTHAS? OR SYNTHETAS?)) AND ((ABIETADIEN? OR DITERPEN?)(S)(SYNTHAS? OR SYNTHETAS?))

=> s l2 and hmg?
L3 283 L2 AND HMG?

=> dup rem l3
DUPLICATE IS NOT AVAILABLE IN 'DGENE'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L3
L4 282 DUP REM L3 (1 DUPLICATE REMOVED)

=> s l4 and (produc? or synthes?)
6 FILES SEARCHED...
L5 282 L4 AND (PRODUC? OR SYNTHES?)

=> s l5 and (microorganism? or cell? or organism? or yeast? or cerevis? or coli?)

1 FILES SEARCHED...
5 FILES SEARCHED...
7 FILES SEARCHED...
L6 281 L5 AND (MICROORGANISM? OR CELL? OR ORGANISM? OR YEAST? OR CEREV
IS? OR COLI?)

=> s l6 and upc?
L7 1 L6 AND UPC?

=> d ti l6 1-281

L6 ANSWER 1 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 2 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 3 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 4 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 5 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 6 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 7 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 8 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 9 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 10 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

diterpenes and diterpene precursors.

L6 ANSWER 35 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 36 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 37 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 38 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 39 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene precursors**.

L6 ANSWER 40 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 41 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 42 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 43 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 44 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 45 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene precursors**.

L6 ANSWER 46 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a

diterpene synthase, useful for producing diterpenes and diterpene precursors.

L6 ANSWER 47 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 48 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 49 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 50 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 51 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 52 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 53 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 54 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 55 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 56 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 57 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase, useful for producing diterpenes and diterpene precursors.**

L6 ANSWER 58 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids

encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 59 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 60 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 61 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 62 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 63 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 64 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 65 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 66 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 67 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 68 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 69 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 70 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN

TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 71 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 72 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 73 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 74 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 75 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 76 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 77 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 78 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 79 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 80 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 81 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

L6 ANSWER 82 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
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L6 ANSWER 83 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
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L6 ANSWER 84 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 85 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene precursors**.

L6 ANSWER 86 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
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L6 ANSWER 87 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
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L6 ANSWER 88 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
diterpenes and **diterpene precursors**.

L6 ANSWER 89 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
diterpenes and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids
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 TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

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TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing** **diterpenes** and **diterpene** precursors.
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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing** **diterpenes** and **diterpene** precursors.
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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing** **diterpenes** and **diterpene** precursors.
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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing** **diterpenes** and **diterpene** precursors.
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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing** **diterpenes** and **diterpene** precursors.
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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing** **diterpenes** and **diterpene** precursors.
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TI New unicellular **organisms** comprising exogenous nucleic acids

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene precursors**.

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TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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 TI New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl** pyrophosphate and a **diterpene synthase**, useful for **producing diterpenes** and **diterpene** precursors.

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diterpenes and diterpene precursors.

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TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
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TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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TI New unicellular **organisms** comprising exogenous nucleic acids
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T1 New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

L6
T1 ANSWER 213 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

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T1 ANSWER 214 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

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T1 ANSWER 215 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

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T1 ANSWER 216 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

L6
T1 ANSWER 217 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

L6
T1 ANSWER 218 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

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T1 ANSWER 219 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

L6
T1 ANSWER 220 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

L6
T1 ANSWER 221 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

L6
T1 ANSWER 222 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

L6
T1 ANSWER 223 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
New unicellular **organisms** comprising exogenous nucleic acids encoding a **geranylgeranyl pyrophosphate** and a **diterpene synthase**, useful for producing diterpenes and diterpene precursors.

diterpenes and diterpene precursors.

L6 ANSWER 248 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 249 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene precursors**.

L6 ANSWER 250 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 251 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 252 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 253 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 254 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 255 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene precursors**.

L6 ANSWER 256 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 257 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 258 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 259 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a

encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 272 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 273 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 274 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 275 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
TI New unicellular **organisms** comprising exogenous nucleic acids
encoding a **geranylgeranyl** pyrophosphate and a
diterpene synthase, useful for **producing**
diterpenes and **diterpene** precursors.

L6 ANSWER 276 OF 281 CAPLUS COPYRIGHT 2004 ACS on STN
TI Metabolic engineering of enzymes for increased diterpene
production in unicellular **organisms**

L6 ANSWER 277 OF 281 USPATFULL on STN
TI Identification and characterization of plant genes

L6 ANSWER 278 OF 281 USPATFULL on STN
TI Biosynthesis of amorpho-4,11-diene

L6 ANSWER 279 OF 281 USPATFULL on STN
TI Biosynthesis of isopentenyl pyrophosphate

L6 ANSWER 280 OF 281 USPATFULL on STN
TI Method for modifying a biosynthetic pathway

L6 ANSWER 281 OF 281 USPATFULL on STN
TI Directed evolution of biosynthetic and biodegradation pathways

=> d ti 17

L7 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2004 ACS on STN
TI Metabolic engineering of enzymes for increased diterpene
production in unicellular **organisms**

=> d ibib abs 16 1 276

L6 ANSWER 1 OF 281 DGENE COPYRIGHT 2004 The Thomson Corp on STN
ACCESSION NUMBER: ADM98884 protein DGENE
TITLE: New unicellular **organisms** comprising exogenous
nucleic acids encoding a **geranylgeranyl**
pyrophosphate and a **diterpene synthase**,
useful for **producing diterpenes** and
diterpene precursors.
INVENTOR: Matsuda S P T; Hart E A
PATENT ASSIGNEE: (MATS-I)MATSUDA S P T.
(HART-I) HART E A.
PATENT INFO: US 2004072323 A1 20040415 38p
APPLICATION INFO: US 2002-41018 20020107
PRIORITY INFO: US 2001-259880P 20010105
DOCUMENT TYPE: Patent

LANGUAGE: English
OTHER SOURCE: 2004-373921 [35]
DESCRIPTION: HMG-CoA reductase polypeptide #137.

AN ADM98884 protein DGENE

AB The invention relates to a unicellular **organism** for producing a **diterpene** or **diterpene** precursor comprising an exogenous nucleic acid sequence encoding a **geranylgeranyl** pyrophosphate **synthase** under the control of a promoter operable in the **organism**, and an exogenous nucleic acid sequence encoding a **diterpene synthase** under the control of a promoter operable in the **organism**. The invention also relates to methods of producing a **diterpene** or **diterpene** precursor and a method of isolating a **diterpene synthase** comprising growing several **cells** in the presence of a polyaromatic resin to make a **cell/resin** mixture, where at least one of the **cells** further comprises at least one isolated and purified nucleic acid sequence of a **yeast** expression library, and the expression of the nucleic acid sequence is regulated by an inducible promoter under conditions where the expression is induced, filtering the **cell/resin** mixture, extracting the **cell/resin** mixture with alcohol to produce an organic eluent and analysing the organic eluent by a screening method including chromatography and/or spectroscopy, to identify the nucleic acid sequence encoding the **diterpene synthase**. The unicellular **microorganism** is useful as a **diterpene** or **diterpene** precursor producing system. **Diterpenes**, in plants, serve as defence toxins, volatile defensive signals, pollinator attractants and photoprotectants. This sequence represents an **HMG-CoA** reductase polypeptide used in the scope of the invention. Note: The sequence data for this patent did not form part of the printed specification but was obtained in electronic format from USPTO at seqdata.uspto.gov/sequence.html.

L6 ANSWER 276 OF 281 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:310772 CAPLUS
DOCUMENT NUMBER: 140:333562
TITLE: Metabolic engineering of enzymes for increased diterpene production in unicellular organisms

INVENTOR(S): Matsuda, Seiichi P. T.; Hart, Elizabeth A.
PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 38 pp.
CODEN: USXXCO

DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004072323	A1	20040415	US 2002-41018	20020107
PRIORITY APPLN. INFO.:			US 2001-259880P	P 20010105

AB The present invention is directed to a unicellular **organism** system, such as a **yeast**, for producing geranylgeranyl pyrophosphate and a diterpene in vivo. The **yeast cell** preferably comprises an inducible nucleic acid sequence encoding **geranylgeranyl** pyrophosphate **synthase**, an inducible nucleic acid sequence encoding a sol. form of **HMG-CoA** reductase, a nucleic acid sequence of an allele that confers an increase in sterol metabolic flux and, in the **diterpene-producing cell**, a **diterpene synthase**. In one embodiment, a haploid *Saccharomyces cerevisiae* strain produces significant yields of diterpene and diterpene precursors and is particularly useful as a prodn. mechanism for these compds. Wild-type **yeast** is transformed with a nucleic acid sequences encoding *Abies grandis* **abietadiene synthase** and/or *S. cerevisiae* **geranylgeranyl** diphosphate **synthase** (BTS1), and increaseing metaboic flux through the sterol biosynthetic pathway by transformation with with *S. cervisiae* or *Arabidopsis thaliana* **HMG-CoA** reductase. The upc2-1 allele is also incorporated to indirectly effect the metabolic flux of sterol bioxyntesis and provide

for an increased prodn. of geranylgeranyl diphosphate, geranylgeraniol,
and diterpene.

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INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE,
AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS,
BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB,
CROPU, DDFB, DDFU, DGENE, DISSABS, ...' ENTERED AT 20:13:46 ON 05 NOV 2004
SEA (GERANYLGERANYL? (S) (SYNTHAS? OR SYNTHETAS?)) AND ((ABIETAD

13 FILE AGRICOLA
3 FILE BIOENG
29 FILE BIOSIS
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25 FILE BIOTECHNO
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16 FILE LIFESCI
26 FILE MEDLINE
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40 FILE USPATFULL
5 FILE USPAT2
2 FILE WPIDS
2 FILE WPINDEX

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FILE 'DGENE, CAPLUS, USPATFULL, SCISEARCH, BIOSIS, ESBIODASE, EMBASE,
MEDLINE, BIOTECHNO, LIFESCI' ENTERED AT 20:18:49 ON 05 NOV 2004

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L3 283 S L2 AND HMG?
L4 282 DUP REM L3 (1 DUPLICATE REMOVED)
L5 282 S L4 AND (PRODUC? OR SYNTHES?)
L6 281 S L5 AND (MICROORGANISM? OR CELL? OR ORGANISM? OR YEAST? OR CE
L7 1 S L6 AND UPC?

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COST IN U.S. DOLLARS

SINCE FILE	TOTAL
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56.33	61.10

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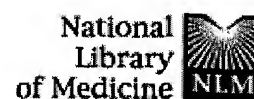
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Pleiotropic mutations in *Saccharomyces cerevisiae* affecting sterol uptake and metabolism.

Lewis TL, Keesler GA, Fenner GP, Parks LW.

Department of Microbiology, North Carolina State University, Raleigh 2769.

Sterol uptake control mutants (*upc*-) have been isolated via ethylmethanesulfonate mutagenesis from wild-type *Saccharomyces cerevisiae*. These mutants are hemolysis competent but possess the ability to accumulate exogenous sterol(s) under aerobic conditions. Previous studies demonstrate sterol uptake only in a hemolysis background; however, the *Upc*- strains described here are Hem⁺ and do not require exogenous sterol for growth. We were unable to obtain viable hem⁺, *erg*-, *upc*- recombinants; such combinations appear to be lethal. Isolates of *Upc* mutants demonstrated different levels of sterol uptake, and sterol analysis revealed a large phenotypic range with regard to amounts and accumulation of ergosterol and ergosterol sterols. Assays of acyl CoA: ergosterol acyltransferase and sterol 6-phosphate hydrolase showed no apparent difference in activity between *Upc* mutants and wild type.

PMID: 3059715 [PubMed - indexed for MEDLINE]

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<u>L5</u>	(4683202 or 4879236 or 5429939 or 5589581 or 5871986 or 5925565 or 5928906 or 5935819)pn.	4713	<u>L5</u>
	<i>DB=PGPB,USPT,EPAB,JPAB,DWPI; PLUR=YES; OP=OR</i>		
<u>L4</u>	(diterpen\$4 or abietadie\$4) and ((geranylgeranyl\$4 same synthas\$4) or ggpp\$4) and ((diterpen\$4 same synthas\$4) or (abietadien\$4 same synthas\$4))	49	<u>L4</u>
<u>L3</u>	L1 and hmg\$6	8	<u>L3</u>
<u>L2</u>	L1 and (matsuda or hart).in.	3	<u>L2</u>
<u>L1</u>	(diterpen\$4 or abietadie\$4) same ((geranylgeranyl\$4 same synthas\$4) or ggpp\$4) same ((diterpen\$4 same synthas\$4) or (abietadien\$4 same synthas\$4))	46	<u>L1</u>

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Search Results - Record(s) 1 through 3 of 3 returned.☐ 1. Document ID: US 20040072323 A1

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L2: Entry 1 of 3

File: PGPB

Apr 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040072323

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040072323 A1

TITLE: Diterpene-producing unicellular organism

PUBLICATION-DATE: April 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
<u>Matsuda</u> , Seiichi P.T.	Houston	TX	US	
<u>Hart</u> , Elizabeth A.	Houston	TX	US	

US-CL-CURRENT: 435/252.3; 435/155, 435/166

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 2. Document ID: US 20020164736 A1

L2: Entry 2 of 3

File: PGPB

Nov 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020164736

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020164736 A1

TITLE: Ginkgo biloba levopimaradiene synthase

PUBLICATION-DATE: November 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
<u>Matsuda</u> , Seiichi P.T.	Houston	TX	US	
Schepmann, Hala G.	Talent	OR	US	

US-CL-CURRENT: 435/183; 435/252.33, 435/254.2, 435/320.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 3. Document ID: US 20040072323 A1

L2: Entry 3 of 3

File: DWPI

Apr 15, 2004

DERWENT-ACC-NO: 2004-373921

DERWENT-WEEK: 200435

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TITLE: New unicellular organisms comprising exogenous nucleic acids encoding a geranylgeranyl pyrophosphate and a diterpene synthase, useful for producing diterpenes and diterpene precursors

INVENTOR: HART, E A; MATSUDA, S P T

PRIORITY-DATA: 2001US-259880P (January 5, 2001), 2002US-0041018 (January 7, 2002)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20040072323 A1	April 15, 2004		038	C12N001/20

INT-CL (IPC): C12 N 1/20; C12 P 5/00; C12 P 7/02

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Abstract	Claims	KMC	Draw D
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Search Results - Record(s) 1 through 8 of 8 returned.☐ 1. Document ID: US 20040072323 A1

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L3: Entry 1 of 8

File: PGPB

Apr 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040072323

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040072323 A1

TITLE: Diterpene-producing unicellular organism

PUBLICATION-DATE: April 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Matsuda, Seiichi P.T.	Houston	TX	US	
Hart, Elizabeth A.	Houston	TX	US	

US-CL-CURRENT: 435/252.3; 435/155, 435/166

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 2. Document ID: US 20040010815 A1

L3: Entry 2 of 8

File: PGPB

Jan 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040010815

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040010815 A1

TITLE: Identification and characterization of plant genes

PUBLICATION-DATE: January 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lange, B. Markus	San Diego	CA	US	
Ghassemian, Majid	Carlsbad	CA	US	
Briggs, Steven P.	Del Mar	CA	US	
Cooper, Bret	La Jolla	CA	US	
Glazebrook, Jane	San Diego	CA	US	
Goff, Stephen Arthur	Encinitas	CA	US	

Katagiri, Fumiaki	San Diego	CA	US
Kreps, Joel	Carlsbad	CA	US
Moughamer, Todd	San Diego	CA	US
Provart, Nicholas	Toronto	CA	CA
Ricke, Darrell	San Diego	CA	US
Zhu, Tong	San Diego		US

US-CL-CURRENT: 800/278; 435/193, 435/419, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 3. Document ID: US 20040005678 A1

L3: Entry 3 of 8

File: PGPB

Jan 8, 2004

PGPUB-DOCUMENT-NUMBER: 20040005678

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040005678 A1

TITLE: Biosynthesis of amorpho-4,11-diene

PUBLICATION-DATE: January 8, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Keasling, Jay	Berkeley	CA	US	
Martin, Vincent	Kensington	CA	US	
Pitera, Douglas	Oakland	CA	US	
Withers, Sydnor T. III	Richmond	CA	US	
Newman, Jack	Berkeley	CA	US	

US-CL-CURRENT: 435/146; 435/193, 435/252.3, 435/320.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 4. Document ID: US 20030148479 A1

L3: Entry 4 of 8

File: PGPB

Aug 7, 2003

PGPUB-DOCUMENT-NUMBER: 20030148479

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030148479 A1

TITLE: Biosynthesis of isopentenyl pyrophosphate

PUBLICATION-DATE: August 7, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
------	------	-------	---------	---------

Keasling, Jay	Berkeley	CA	US
Martin, Vincent	Kensington	CA	US
Pitera, Douglas	Berkeley	CA	US
Kim, Seon-Won	Jeongdong-myeon Sacheon	CA	KR
Withers, Sydnor T. III	Richmond	CA	US
Yoshikuni, Yasuo	Berkeley	CA	US
Newman, Jack	San Francisco	CA	US
Khlebnikov, Artem Valentinovich	Mountain View		US

US-CL-CURRENT: [435/131](#); [435/252.3](#), [435/320.1](#), [435/471](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 5. Document ID: US 20020142281 A1

L3: Entry 5 of 8

File: PGPB

Oct 3, 2002

PGPUB-DOCUMENT-NUMBER: 20020142281

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020142281 A1

TITLE: Method for modifying a biosynthetic pathway

PUBLICATION-DATE: October 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Broun, Pierre	San Mateo	CA	US	

US-CL-CURRENT: [435/4](#); [800/278](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 6. Document ID: US 20020051998 A1

L3: Entry 6 of 8

File: PGPB

May 2, 2002

PGPUB-DOCUMENT-NUMBER: 20020051998

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020051998 A1

TITLE: Directed evolution of biosynthetic and biodegradation pathways

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Schmidt-Dannert, Claudia	Shoreview	MN	US	
Arnold, Frances H.	Pasadena	CA	US	

US-CL-CURRENT: 435/7.1; 435/325, 435/410, 435/67

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 7. Document ID: US 6727234 B2

L3: Entry 7 of 8

File: USPT

Apr 27, 2004

US-PAT-NO: 6727234

DOCUMENT-IDENTIFIER: US 6727234 B2

TITLE: Isoprenoid analog compounds and methods of making and use thereof

DATE-ISSUED: April 27, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wiemer; David	Iowa City	IA		
Hohl; Raymond J.	Iowa City	IA		

US-CL-CURRENT: 514/129; 558/152, 558/155

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 8. Document ID: US 6002071 A

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INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chappell; Joseph	Lexington	KY		
Newman; Jeffrey D.	Williamsport	PA		
Yin; Shaohui	Ardmore	OK		

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